

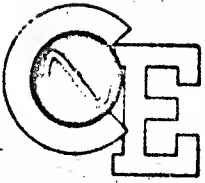
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7/14/65

LISTING

RSOIC

PROVIDENT MUTUAL LIFE



Diagnostic Engineering Publications

IBM POUGHKEEPSIE

OC1
4/15/64

1410/7010

Subject: Diagnostic Program RS01D
1442 Serial Card Reader and 7223 Console Card Reader Test
Sequence Number 513
Replaces RS01C and BZ50A

1. This program replaces and obsoletes RS01C (1442 serial card reader test), and BZ50A (7223 Console Card Reader test).
2. This level may be run from the TC50 tape.
3. C Level Test Decks (Ripple and Illegal Character) should be used with RS01D.

Enclosures: 31 Pages

Card Deck for CARD ONLY SYSTEMS (as punched by UP51)		
8 Cards - Card Loader and Core Clear		77 Cards - Deck I 001-077
068 Cards No. 001-068	Data Cards	51 Cards - Deck II 078-128
1 Card	Execute Card	

Distribution: X 1410 - With 1442 Serial Reader or 7223 Console Card Reader
X 7010
Other

003

RS01D

SERIAL CARD READER TEST

(1442 MODEL 3)

(7223 Console Reader)

3/30/64

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5.00.00.0 TEST DESCRIPTION

.00.1 Modifications

- A. RS01D modifies and obsoletes RS01C and also obsoletes BZ50A (7223 Console Card Reader)
The ability to test the 7223 console card reader has been added to this version of the program.

.00.2 Description

- A. The 1442 Mod 3 Serial Card Reader or the 7223 Console Card Reader is tested for reliability while reading pre-punched cards. The ability to interrupt and the cause of interrupt are also tested. The test can be run on Channel I or Channel II.
- B. Two decks of prepunched cards are used as input.
- a. Deck I is a repeated or single 77 card deck, has legal characters, and is composed of sequentially numbered (001-077) rippled cards.
A similar pattern is set up in storage, rippled, and a card-image-to-pattern comparison made for proper reading. Compare errors are signalled by typeouts and the display of card image and storage pattern.

Status Indicator ON errors are signalled by specific error typeouts.

If the Priority feature is included and is to be tested; the operator must turn the Priority Request Indicator ON. This, plus channel not busy, an interruptible instruction, and the entering of Priority Alert Mode, causes an interrupt. If there is no interrupt, an error typeout will follow. If the interrupt routine is entered properly, the cause of the interrupt is tested. If the cause was other than the proper settings of the Priority Request Indicator, an error typeout will follow.

During the reading of Deck I, the time between the first 2 consecutive clutch latch-ups is prolonged. As reading continues the time between latch-ups is progressively decreased.

- b. Deck II is a 51 card illegal character deck numbered (078-128), each card containing one different illegal character randomly placed. This deck should be read with Asterisk Insert Switch ON.

If expected data checks do not occur, a typeout will signal the error.

Interrupt and its cause are tested as in B (a).

Clutch latch-up timing is not modified as in B (a).

.00.3 Equipment

Serial Card Reader 1442 Mod 3 or 7223 Console
Card Reader. Processing Unit 1411 Mod 1,2,3,4,
or 5 (Minimum Storage - 10K)
Console 1415

.00.4 Card Deck

<u>Number of Cards</u>	<u>Sequence</u>	<u>Numbers in col. 78-80</u>
7	Loader	-----
1	Core Clear	-----
68	Program	001-068
1	Execute Card	-----
Multiples of 77	*Repeated Ripple Deck(I)	001-077
51	*Illegal Character Deck (II).	078 - 128

.00.5 E. C. Level of Machine

Serial Card Reader E. C. 805333 (all Suffixes)

5.00.01.0 LOADING PROCEDURES

01.1 FROM CARDS (Load Program L1A preceding Card Deck)

* Decks I and II cannot be put on tape.

A. 7010-1410 without Load Button.

1. Display Memory Location 00000
2. Alter to

vv	v	
RL%1100011\$.		Enter according to chan-
v		nel location of the card
X <input checked="" type="checkbox"/>		reader.
3. Set to Run, Computer Reset and Start.

B. 7010 with Load Button

1. Computer Reset
2. Depress Load Button

.01.2 FROM TAPE (80 Character Master or Memory Dump Tape)

A. 7010-1410 with out Load Button

1. Display Memory Location 00000
2. Alter to

vv	v	
RL%B000011\$.		Enter according to chan-
v		nel location of the tape
X <input checked="" type="checkbox"/>		drive.
3. Set to Run, press Computer Reset.

B. 7010 with load button

1. Computer Reset
2. Depress Load Button

5.00.02.0 OPERATING PROCEDURES

.02.1 Switches

- A. Asterisk Insert Switch must be ON to permit reading of illegal character cards.

- B. When testing interrupt, it is necessary to turn on the Priority Request Indicator. To do this, set the Priority Select ON-OFF switch to ON, and dial Reader.

..02.2

TAD's

- A. Normal TAD's will not be requested, but may be inserted by the operator.

<u>Location</u>	<u>Normal TAD's</u>			
1000	TAD 0	OFF	1	Normal typeouts
		ON	1	Bypass typeouts (for scoping)
1001	TAD 1	OFF	1	Proceed to next routine
		ON	1	Loop the routine
1002	TAD 2	OFF	1	Continue on errors
		ON	1	Halt on errors
1003	TAD 3	OFF	1	One pass of program
		ON	1	Repeat program

Normal TAD's are internally set to "bbbb".

.02.3

Program Time Changes

By altering location 07277 to N, any latch-up time interval may be made constant throughout the ripple deck run.

By simultaneously altering location 07294 and 07299, progressive latch-up time interval may be shortened (by increasing the constants) or lengthened (by decreasing the constants).

5.bb.03.0

OPERATING HINTS, COMMENTS

03.1

Choice of Input Machines

RS01 can be read into storage from tape, or from a 1402 Mod 2 card reader on a separate channel or from the S.C.R., or from the 7223 Console Card Reader.

03.2 Illegal Character cards

If an illegal character card is lost or mutilated, any illegal character card may be substituted provided there is a "1" in column 77.

03.3 DUPLICATE ALL DECKS WHEN RECEIVED*

03.4 Always check to see that the last card has been stacked. If the last card has not been stacked, Press Non Process Runout and Start.

03.5 "PASS" is the end of test.

03.6 When Running the 7223 a blank card must be added to the end of the test deck.

5.bb.04.0 PROGRAM STOPS AND RESTARTS

04.1 Stops, their Causes and Restart Procedures are given below in sequential order. An "N" in the left-hand margin signifies the stop is normal.

<u>Stop Location</u>	<u>Cause</u>	<u>Restart Procedure</u>
03157	Compare Error	Press Start to Continue
03680	Interrupt Did Not Take Place Properly	Check Priority Request It Should be on. Press Start to Continue
03740	Error Branch on Chan 1	Press Start to Continue
03814	Error Branch on Chan 2	Press Start to Continue
03803	Branched on Second YIU	Press Start to Continue

* If facilities are not available, send for new decks to Reliability and Serviceability Department.

<u>Stop Location</u>	<u>Cause</u>	<u>Restart Procedure</u>
N 06025	Reader not Ready	Make Reader Ready Press Start to Continue
N 06180	To repeat test or no Channel Card Punched	Press Start or punch Channel Card
06259	Data Check	Press Start, if 1002-1 to continue

5. bb.05.0 TYPEOUTS

05.1 Normal "RS01D". Number and Suffix of Test

"READER NOT READY - MAKE READY AND PRESS START"

If there is no Feed Check, consider this a normal typeout.
If there is a Feed Check, it may be due to one or more of the
following conditions:

- Misfeed error (covered separately).
- Card jam (reset button will not reset feed chk light).
- Card in wrong place (covered separately). Reset button
- Extra cycle taken will reset feed chk light
- Photocell malfunction (covered separately).
- Cover interlock switch operating.

"PASS" End of Test. This indicates that the end of file condition has been
properly generated and tested by the program. RS01D branched to 400 to
load the next diagnostic program.

"TO REPEAT TEST, PUT DATA CARDS IN HOPPER, MAKE READER READY,
AND HIT START" when 1003 is a "1", program can repeat. When 1003 is not
a "1", program will call in next test.

05.2 Error

"CARD XXX DOES NOT GIVE EXPECTED DATA CHECK"

This message occurs when a card in deck II (illegal) is not
recognized as an illegal character card. If this error is solid
or intermittent, a translation problem exists.

"DATA CHECK - CARD NUMBER XXX - PRESS START IF 1002-1." Either CPU detects a parity error, or an error is detected by the hole count checking circuitry.

"CARD XXX DOES NOT COMPARE"

"CARD READS"

XXXXX -----XXX

"CPU CONTAINS"

XXXXX -----XXX

If location 1000 contains a "1", this message is bypassed.

"BRANCHED IF PRIORITY INQUIRY". The cause of interrupt was either an intentional Inquiry Request or a machine error.

"INTERRUPT DID NOT TAKE PLACE PROPERLY"

If the Priority Request Indicator has not been set ON properly or there is a machine failure, there will be no interrupt.

"BRANCHED ON CHAN 1 OLAP"

"BRANCHED ON CHAN 2 OLAP"

"BRANCHED ON SECOND YIU"

Any one of the above 3 messages depicts an error, and shows that the cause of the interrupt was other than the first Y(I)U instruction.

"MISFEED ERR - VISUAL CK SHOWS NO CARD AT READ STATION - FIX CARD" The no transfer indicator has been tested and found ON. A reader-not-ready message will follow. After fixing card, make the reader ready and press START. The program will continue.

"WLR - FEED CHK OCCURRED AFTER READ INSTRUCTION- CARD IN WRONG PLACE OR JAM - IF CARDS OUT OF SEQUENCE DUE TO JAM, RELOAD ALL DATA CDS." The wrong length record indicator has been tested and found ON. Cards may or may not be out of sequence. Ready may or may not drop. The various combinations are listed below:

(See page 10)

	<u>Procedure</u>	<u>Due to</u>
	Clear Jam	*
WLR	Make Reader Ready	(Reset button
Not ready	Reload All Data Cds	JAM will not reset
Out of Sequence	Press Start	feed chk light)
	Remove Faulty Eject Cd if	* (Reset Button will
	Present	Jam not reset feed chk
WLR	Clear Jam if Present	light)
Not ready	Make Reader Ready	
Not out of	Press Start	Card in wrong place
Sequence		
	Look for an obstruction in	Other than 80 strobes
	one or more of the emitter	have been sent to CPU
WLR	disk slots	
<u>Not Not Ready</u>		

"DATA CHECK - CARD NUMBER XXX - PRESS START IF
1002-1"

"CARD XXX DOES NOT COMPARE"

"CARD READS"

XXXXXX -----XXX

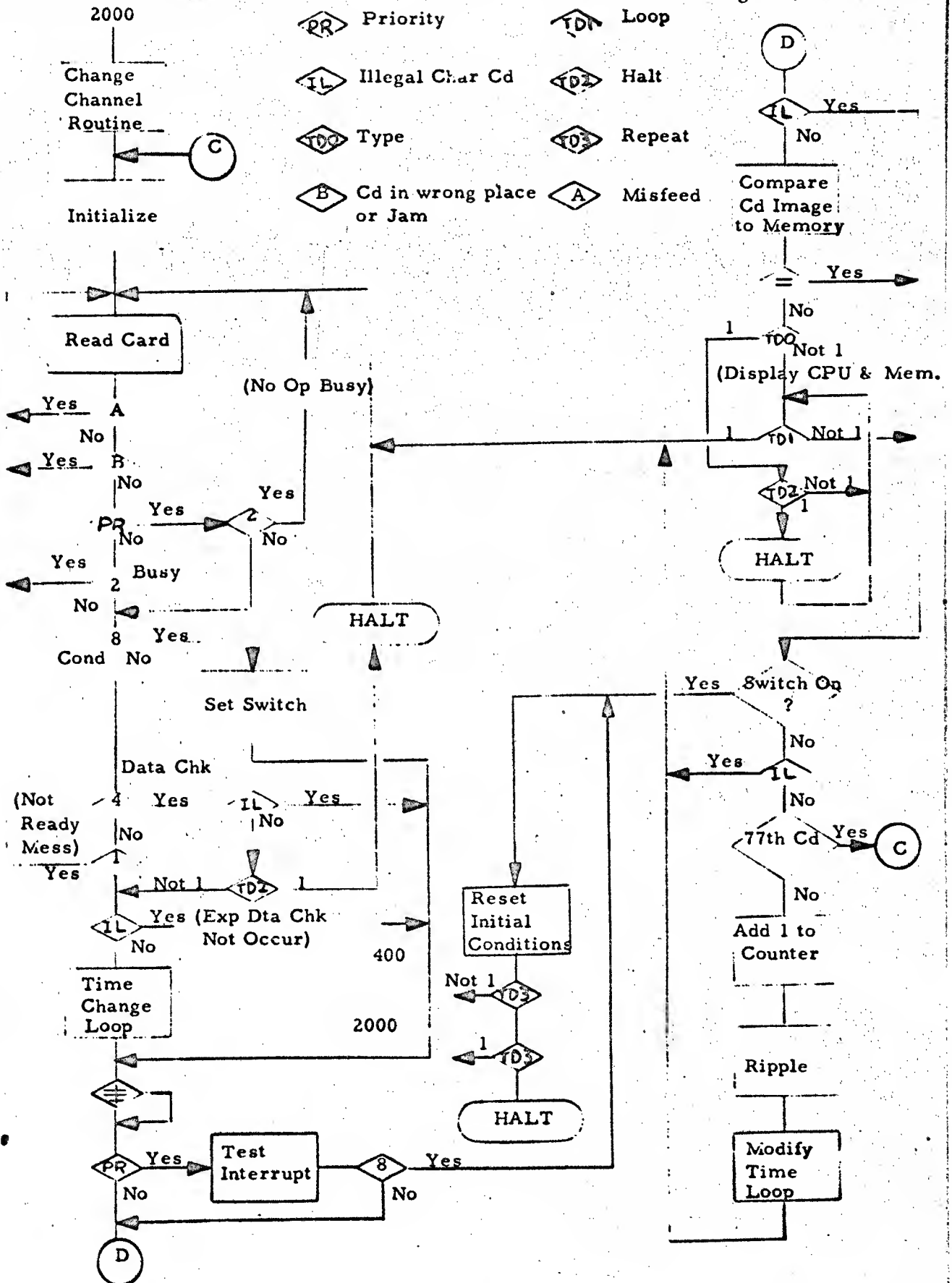
"CPU CONTAINS"

XXXXXX -----XXX

"READER NOT READY - MAKE READY AND PRESS START"
This combination of Data Check and Not Ready message equal
a cell chk. The no-compare timeout tells the operator which
photocell(s) is faulty. Chk non-process run out after clearing
feed, or chk for faulty motion past the read station.

*TRY RESET BEFORE OPENING COVER

RS01 - Page 011



014
1201

CT ADDR INSTRUCTION

RS01-1442 CR 7223 CARC READERS
 CPCCD CPERAND

PGLIN LABEL

1002\$ LINES 36
 1003\$ LCAC
 1004 CIL 2

TEST ALTERATION DIGITS

1005
 1006
 1007
 1008 CRG 1000
 1009 CC 2 2
 1010 TAD0 1 BYPASS TYPE-NCT 1,CC NCT
 1011 TAD1 1 LOOP-NCT 1,CC NCT
 1012 TAD2 1 HALT-NCT 1,CC NCT
 1013 TAD3 1 REPEAT PGM-NCT 1,DC NCT
 1014
 1015
 1016 CCW 2 2

STANDARD INTERNAL TAD ROUTINE

1017 IIR ITRXT165 STORC BAR
 1018 IIR1 RCP ITR264 ENTER IC ALTER
 1019 8EX1 ITR1,M RETURN CN ANY BUT WLR & NY
 1020 BNT1 ITRXT BRACH NT
 1021 BAI ITR2 RESET INTERLCK
 1022 RCPH C S ENTER DATA-ADDRESS MCCFIER
 1023 REX1 ITR2,M RETRN CN ANY BUT WLR
 1024 BAI 461 RESET INTERLCK
 1025 ITRXT B C RETRN IC MAIN PROGRAM
 1026 H
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 1030\$ CRG 1231
 1031\$ CCW 25M5CM55JKCJ513.92
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 1036\$ NUMBR 1250
 CCW 25R5C1013.9

PROGRAMMING SYSTEM CONTROL CONSTANTS

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RSCI INSTRUCTION

PGLIN	LABEL	CPCCD	CPERAND	CT	ADDRES	INSTRUCTION
1038	*****					
1039	*****					
1040	*****					
1041	*****					
1042	*****					
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1063	*****					
1064	*****					

RSGI INSTRUCTION

PGLIN	LABEL	CPCCD	CPERAND	CT	ADRS	INSTRUCTION
1090	627 CC	2 2	F - 1405 FILE	1	01316	4C
1091	628 CC	2 2	1,2,3 - 1,2,3 ARMS IN MODULE C	1	01317	41
1092	629 CC	2 2	1,2,3 - 1,2,3 ARMS IN MODULE 1	1	01318	42
1093	630 CC	2 2	1,2,3 - 1,2,3 ARMS IN MODULE 2	1	01319	43
1094	631 CC	2 2	1,2,3 - 1,2,3 ARMS IN MODULE 3	1	01320	44
1095	632 CC	2 2	1,2,3 - 1,2,3 ARMS IN MODULE 4	1	01321	45
1096	633 CC	2 2	1 - 7750 CN THIS CHANNEL	1	01322	46
1097	634 CC	2 2	1 - 7740 CN THIS CHANNEL	1	01323	47
1098	635 CC	2 2	1 - 1440/1460 CN THIS CHANNEL	1	01324	48
1099	636 CC	2 2	1 - CFAN FAS CHANNEL EXTENDER	1	01325	49
1100	637 CC	2 2	L - LCK SPEED TYPYR TAPE	1	01326	50
1101	638 CC	2 2	1,2,3-1050-1,2,CR BCTH ADAPTERS	1	01327	51
1102	639 CC	2 2	1-HIT-1412-MAGNETIC INK CHAR RDR	1	01328	52
1103			2-BIT-1415-MAGNETIC INK CHAR RDR			
1104	640 CC	2 2	1-BIT-1005-DATA TRANS UNIT	1	01329	53
1105	641 CC	2 2	1-HIT-1014-REMCITE INQUIRY	1	01330	54
1106	642 CC	2 2	1-BIT-TELEGRAPH	1	01331	55
1107	643 CC	2 2	F - 1302 FILES	1	01332	56
1108	644 CC	2 2	RESERVED	1	01333	57
1109	645 CC	2 2	RESERVED	1	01334	58
1110	646 CC	2 2	RESERVED	1	01335	59
1111	655 CC	2	SPARES	5	01344	60-69
1112	656 CC	4 4		1	01345	60

CT ACCRS INSTRUCTION

PGLIN	LABEL	CPCCD	CPERANC		CT	ACCERS
1114	*****					
1115	*STANDARD CHANNEL 2 CONTROL CARL.					
1116	*****					
1117		CRG	1346	CHARACTER & PURPOSE	COL	01346
1118	CHN2	DC	2 2	1 - PAPER TAPE READER	1 2	01346
1119		E1 CC	2 2	1 - CONSOLE PRINTER	14	01347
1120		E2 CC	2 2	1 - TAPES 729/733C	15	01348
1121		E11 CC	2	2 SPARES	16-24	01357
1122		E12 CC	2 2	R,S,C - 1402,1442,7223 READER	25	01358
1123		E13 CC	2 2	B - READER COLUMN BINARY FEAT.	24	01359
1124		E14 CC	2 2	P - 1402 PUNCH	27	01360
1125		E15 CC	2 2	B - PUNCH COLUMN BINARY FEAT.	28	01361
1126		E16 CC	2 2	P - 1403 PRINTER	29	01362
1127		E17 CC	2 2	A,N - ALPHA,NUMERIC PRINT CHAIN 30	1	01363
1128		E18 CC	2 2	1,2 - 100,132 CHAR PRINT BUFFER 31	1	01364
1129		E19 CC	2 2	F - 1301 FILE	32	01365
1130		E20 CC	2 2	1 THRU 0 - 1 THRU 10 FILE MODULE 33	1	01366
1131		E21 CC	2 2	1 THRU 0 - 1 THRU 10 ACCESSSES	34	01367
1132		E22 CC	2 2	R - 1311 IMPAC	35	01368
1133		E23 CC	2 2	1 THRU 5 - 1 THRU 5 IMPAC MODULE 36	1	01369
1134		E24 CC	2 2	1 - SEEK OVERLAP FEATURE	37	01370
1135		E25 CC	2 2	1 - SCAN FEATURE	38	01371
1136		E26 CC	2 2	1 - TRACK RECCRD FEATURE	39	01372

RS01 INSTRUCTION

PGLIN	LABEL	CPCCD	CPRAND	CI	ACORS	INSTRUCTION
1138		E27 CC	2 2 F - 1405 FILE	1	01373	4C
1139		E28 CC	2 2 1,2,3 - 1,2,3 ARMS IN MODULE C	1	01374	41
1140		E29 CC	2 2 1,2,3 - 1,2,3 ARMS IN MODULE 1	1	01375	42
1141		E30 CC	2 2 1,2,3 - 1,2,3 ARMS IN MODULE 2	1	01376	43
1142		E31 CC	2 2 1,2,3 - 1,2,3 ARMS IN MODULE 3	1	01377	44
1143		E32 CC	2 2 1,2,3 - 1,2,3 ARMS IN MODULE 4	1	01378	45
1144		E33 CC	2 2 1 - 7750 CN THIS CHANNEL	1	01379	46
1145		E34 CC	2 2 1 - 7740 CN THIS CHANNEL	1	01380	47
1146		E35 CC	2 2 1 - 1440/1460 CN THIS CHANNEL	1	01381	48
1147		E36 CC	2 2 1 - CFAN PAS CHANNEL EXTENDER	1	01382	49
1148		E37 CC	2 2 1 - LCM SPEED HYPER TAPE	1	01383	50
1149		E38 CC	2 2 1,2,3-105C-1,2,3 CR BCTH ADAPTERS	1	01384	51
1150		E39 CC	2 2 1-BIT-1412-MAGNETIC INK CFAR RCRS	1	01385	52
1151			2-BIT-1415-MAGNETIC INK CFAR RCR			
1152		E40 CC	2 2 1-BIT-1005-DATA TRANS UNIT	1	01386	53
1153		E41 CC	2 2 1-BIT-1014-REPCIE INQUIRY	1	01387	54
1154		E42 CC	2 2 1-BIT-TELEGRAPH	1	01388	55
1155		E43 CC	2 2 F - 1302 FILES	1	01389	56
1156		E44 CC	2 2 RESERVED	1	01390	57
1157		E45 CC	2 2 RESERVED	1	01391	58
1158		E46 CC	2 2 RESERVED	1	01392	59
1159		E55 CC	2 2 SPARES	5	01401	60-69
1160		E56 CC	2 2	1	01402	69

RSOI INSTRUCTION

CT ADDR

CT ADDR

CT ADDR

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1162 *****

1163 **STANDARD TYPE ROUTINE 1.

1164 TYP1 SRP TYP2C5 STORE MESSAGE ADDRESS

1165 SRP TYP3C8 STORE MESSAGE ADDRESS

1166 SCNRG C,C FIND RETURN ADDRESS

1167 SAR TYP4C5 SET ADDRESS FOR EXIT

1168 BCE TYP4,TA00,1 BYPASS TYPING PER TAC C

1169 MCP C TYPE MESSAGE

1170 BCH1 TYP3 TRY AGAIN IF BUSY

1171 HAI *C1 RESET INTERLOCK

1172 H C RETURN TO MASTER PROGRAM

1173 H TERMINATE TYPE ROUTINE

1174 * CHANGE CHANNEL ROUTINE

1175 *

1176 CRG 2CCC

1177 NCP

1178 START

1179 R CHAN1 CNE SHT CHAN CHAGE

1180 B JCC BYPASS CHAN CHAGE

1181 CS X15

1182 PCE TWCK,SYS1C13,1 CHAN 2 AVAIL

1183 PLCKS AN,RI NCP PRIORITY INST-2

1184 PLCKS AN,CHEW1 NCP PRIORITY INST-2

1185 R TART1

1186 BCE TART1,SYS1C19,1 PRIORITY EXTENSION FEAT.

1187 PLCKS AN,RI

1188 PLCKS AN,CHEW1

1189 SW X15-4,X1-4

1190 PLWP X15-4,X14-4 PUT WP OVER EVERY P-1 CRT

1191 BCE CHAN2,CHN2C12,S CHAN2

1192 BCE CHANA,CHN2C12,C 7223 CCNSCLE RCR CN 2

1193 BCE JCC,CHN1C12,S CHAN1

1194 BCE JCCA,CHN1C12,C 7223 CCNSCLE RCR CN 1

1195 H WR11BCL7 TRY AGAIN

1196 MCP NUMR TYPE TEST NUMBER

1197 HAI *-16 ANY

1198 H TART1

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PGLIN	LABEL	CPCCD	CPERANC	CT	ADDRS	INSTRUCTION	PAGE
1158\$	CHANA	PLCS	ZZ,REAC&2	12	02202	D 07315 02510 3	
1159\$		PLCS	ZZ,PRICR&2	12	02214	D 07315 03426 3	
1200	CHAN2	PLCHA	25CCC,X1	12	02226	D 07791 00029 X	
1201		BCE	*013,SYSIC9,1	12	02238	B 02262 01265 1	
1202		PLCHS	NN,R2	12	02250	D 07314 03521 7	
1203\$	BP	BH	F,C&X1	12	02262	V 02310 CCO+0 1	
1204	SUBT	S	01,X1	11	02274	S 07792 00029	
1205		C	02259,X1	11	02215	C 07796 00029	
1206\$		BE	CIF&R	7	02256	J 02410 S	
1207		B	BP	7	02303	J 02262	
1208	F	BCE	POVX,0&X1,R	12	02310	B 02353 000+0 M	
1209		BCE	POVP,1&X1,2	12	02322	B 02372 CCO+1 2	
1210		BCE	POVU,6&X1,L	12	02334	B 02391 000+6 L	
1211		B	SUBT	7	02346	J 02274	
1212	POVX	PLCHS	EX,C&X1	12	02353	D 07188 CCO+0 7	
1213		B	SUBT	7	02365	J 02274	
1214	POVP	PLCS	LOZ,1&X1	12	02372	D 07286 CCO+1 3	
1215		B	SUBT	7	02384	J 02274	
1216	POVU	PLCS	EF,6&X1	12	02391	D 07285 000+6 3	
1217		B	SUBT	7	02403	J 02274	
1218	CIF&R	B	JCC	7	02410	J 02441	
1219							
1220			INITIALIZE				
1221							
1222\$	JCCA	PLCS	ZZ,REAC&2	12	02417	D 07315 02510 3	
1223\$		PLCS	ZZ,PRICR&2	12	02429	D 07315 03426 3	
1224	JCC	CH	START&1	6	02441	D 02001	
1225		PRCHK	LAPEL1,1	12	02447	D 06260 CCO01 S	
1226		PRCHR	LAPEL2,101	12	02459	D 06268 C0101 S	
1227		PLANA	ABC,X2	12	02471	D 07276 00034 V	
1228		PLCA	POCAT,PC&C	12	02483	D 07268 07079 1	
1229							
1230			REAC PCUTINE				
1231							
1232	JIC	BNC	ITR	7	02455	J 01005 C	
1233	E	CS	PC&C	6	02502	/ 07179	

POLIN	LABEL	CPCCD	CPERAND	CT	ADORS	INSTRUCTION
1234	READ	R	1,PCRD	1C	C25C8	M 211 C71C0 R
1235		RNT1	WESP	7	C2518	R 026C0 H
1236		BW11	WESC	7	C2525	R 02687 -
1237		BCE	BLSY, SYSIC8, 1	12	C2532	B 02558 01264 1
1238		BCB1	READ	7	C2544	R 025C8 2
1239		B	LCK	7	C2551	J 02572
1240	BLSY	NCP		1	C2558	N
1241		BCB1	READ	7	C2554	R 025C3 2
1242		Ch	BUSY1	6	C2566	H 02559
1243	LCK	BEF1	SW	7	C2572	R 02585 8
1244		BER1	INSERT	7	C2579	R 02852 4
1245		BR1	WRT2	7	C2586	R 060C0 1
1246		B	PLCH	7	C2593	J 02838
1247	WESP	BCE	ALC, IACO, 1	12	C2600	B 0268C 010C0 1
1248		B	TYPE1	7	C2612	J 07742
1249		CCW	2 MISFEED ERR-VISUAL CK SPCHS NC CARC2	35	C2653	
1250		CC	2 AT READ STATION-FIX CARC2, G	25	C2676	
1251	ALC	B	READ	7	C2680	J 025C8
1252	WESP	BCE	ALI, IACO, 1	12	C2687	H 02631 010C0 1
1253		B	TYPE1	7	C2659	J 07742
1254		CCW	2 WLR-FEED CHK OCCURED AFTER READ2	31	C2736	
1255		CC	2 INSTRUCTION-CARD IN WRONG PLAC2	32	C2768	
1256			2 CR JAM-IF CDS CUT OF SEQUENCE DUE TO2	37	C28C5	
1257			2 JAM, RELOAC ALL DATA CCS2, G	24	C2829	
1258	ALI	B	READ	7	C2831	J 025C8 G
1259	PLCH	BA1	21	7	C2838	R 02645 M
1260		B	TIME	7	C2845	J 02895
1261	INSERT	SH	PCREND-2	6	C2852	• C7177
1262		PLNA	PCREND, MES3E26	12	C2858	D 07173 07386 /
1263		Ch	PCREND-2	6	C2870	H 07177
1264		BCE	CCNT, PCREND-3, 1	12	C2876	R 02932 C7176 1
1265		B	WRT3	7	C2888	J 06023
1266	TIME	BCE	WRT3, PCREND-3, 1	12	C2895	B 06186 C7176 1
1267		A	YYY, ZZZ	11	C29C7	A 073C3 C73C8
1268		BAV	CCNT	7	C2918	J 02932 2
1269		B	TIME	7	C2925	J 02855

RSOI INSTRUCTION

PGLIN LABEL CPCCD CPERANE

1270	CCNT	NCP	RESET INTERLOCK
1271	ANY	BAL	TO ITR
1272		BAQ	BRANCH IF NC PRICRTY
1273		BCE	TC PRICRTY ROUTINE
1274		B	ILLEGAL
1275	CNN	BCE	TC CCMPARE
1276		B	SWITCH FOR LAST CARD
1277	SWP	SW	TC RESET
1278		B	

CCMPARE ROUTINE

1279			SET NM TC STCP CCMPARE
1280			LAST CARD
1281			CCMPARE WCRK TC REAF
1282	CCPP	SW	BRANCH EQUAL
1283		BA	BRANCH TC BYPASS TYPE
1284		C	
1285		BE	
1286		BCE	
1287		SW	
1288		PLNA	
1289		CH	
1290		PLCA	
1291		SW	
1292		PLCA	
1293		CH	
1294		B	
1295	XXXX	BCE	
1296		B	
1297	BB	BCE	
1298		B	
1299	PLT	H	

RIPPLE ROUTINE

1300			
1301			
1302			
1303	ADD	BA	
1304		BCE	

1	02932	N	G
7	02933	R	0294C
7	02940	J	01005
12	02947	B	02966
7	02959	J	03424
12	02966	B	03157
7	02978	J	02998
6	02985		07288
7	02991	J	02933

6	02998		07100
12	03004	V	03316
11	03016	C	07076
7	03027	J	03157
12	03034	B	03132
6	03046		07177
12	03052	D	07177
6	03064		07177
12	03070	D	07179
6	03082		07000
12	03088	D	07079
6	03100		07000
7	03106	J	06047
12	03113	H	02495
7	03125	J	03157
12	03132	B	03151
7	03144	J	03113
6	03151		03113

12	03157	V	03316
12	03169	B	02502
11	03181	C	07281

PGLIN	LABEL	CPCOD	OPERAND	CT	ADDRS	INSTRUCTION	RSGL
1306		BE	JCC	7	C3192	J 02441 S	
1307		SW	PGEND-2,PGEND-3	11	C3199	PGC77 C7C76	
1308		A	TALLY,PGEND	11	C3210	A 07271 07C79	
1309		SW	PGCAT-3	6	C3221	PGC765	
1310		MRC	CCCCGLX2,HCLK	12	C3227	0 C000 07C00 #	
1311		SPR	FINICIC	7	C3239	C 03279 B	
1312		CK	PGCAT-3	6	C3246	PGC765	
1313		S	CNE,X2	11	C3252	S 07186 C0C34	
1314		CK	PGCAT-79	6	C3263	PGC7189	
1315	FINI	MRC	PGCAT-79,0CC00	12	C3269	0 07189 0C000 #	
1316		SW	PGCAT-79	6	C3281	PGC7189	
1317		A	XXX,YYY	11	C3287	A C7258 C7303	
1318		CK	PGEND-2,PGEND-3	11	C3298	PGC77 07C76	
1319		B	E	7	C3309	J C2502	
1320							
1321			END ROUTINE				
1322							
1323	END	MLCA	BLANKS,MES3626	12	C3316	0 07284 C7386 I	
1324		MLCA	BLANKS,MES667	12	C3328	0 07284 C7417 I	
1325		MLNK	WWW,ZZZ	12	C3340	0 07313 07308 E	
1326		MLNK	XXX,YYY	12	C3352	0 07258 C7303 E	
1327		CK	PGEND-2,PGEND-3	11	C3364	PGC7100 C7177	
1328		CK	PGEND-2,PGEND-3	11	C3375	PGC77 C7C76	
1329		MLCA	ATLX,X2	12	C3386	0 07293 C0C34 X	
1330		CK	SPACE1	6	C3398	PGC7288	
1331		BCE	WRITE,IC03,1	12	C3404	B C6163 C1CC3 I	
1332		B	WRITE	7	C3416	J 06133	
1333		F		1	C3423		
1334							
1335			ENTER PRIORITY ALERT MCODE				
1336							
1337	PRIOR	ML	WRITE,PGC,Q	10	C3424	M 011 C71C0 Q	
1338		HCB1	WRITE	7	C3434	R 03424 2	
1339		PA1	WRITE	7	C3441	K 03448 M	
1340		REF1	END	7	C3448	R 03316 B	
1341	CCC	BEPA	EXT	7	C3455	Y C3465 E	

PGLIN	LABEL	CPCCD	CPERANC	EXIT	PRIORITY	ALERT	MCDE	CT	ADDRS	INSTRUCTION
1342		BXPA	INTERR		EXIT	PRIORITY	ALERT	MCDE		
1343	EXT	BA	18-BLANK	101	CLEAR	WM			7	C3462 Y C3604 X
1344		SA	BLANK	SET	SWITCH	CN			12	C3469 V C3462 07287 1
1345		B	CNA						6	C3481 • 07287
1346									7	C3487 J C2966
1347										
1348										
1349	CLT	CN	BLANK	TURN	SWITCH	CFF			6	C3454 D 07287
1350		B	CREW						7	C3500 J 05001
1351	FLY	BCPR1	ERR1	ERRCR	BRANCH	CN	CHAN	1CLAP	7	C3507 Y C3680 1
1352	R1	BCPR2	ERR2	ERRCR	BRANCH	CN	CHAN	2 CLAP	7	C3514 Y C3748 2
1353	R2	BLPR	ERR3	ERRCR	BRANCH	CN	2ND	YIL	7	C3521 Y C3816 U
1354	R3	BLPR	CUR	PRIORITY	INQUIRY	BRANCH			7	C3528 Y C3542 C
1355	R4	B	995945X5	HACK	TO	MAIN	PGM		7	C3535 J 99224
1356										
1357										
1358										
1359	CUR	BCE	YBP,1000,1	BRANCH	TO	BYPASS	TYPE		12	C3542 B C3590 01000 1
1360		B	TYPEIT	COMMON	TYPE	ROUTINE			7	C3554 J 07742
1361		CCW	BRANCHED	CN	PRIORITY	INQUIRY	G		28	C3588
1362	YBP	B	ITR	IC	ITR				7	C3590 J 01005
1363		B	R4	BACK	TO	INTERUPT	ROUTINE		7	C3597 J 03535
1364										
1365										
1366										
1367	INTERR	B	TYPEIT	COMMON	TYPE	ROUTINE			7	C3604 J 07742
1368		CCW	INTERUPT	DIC	NOT	TAKES			22	C3632
1369	RC	CC	PLACE	PROPERLY	G				15	C3647
1370	CBA	CN	BLANK	TURN	SWITCH	CFF			6	C3649 D C7287
1371		BCE	CRC,1002,1	IC	FALT				12	C3655 B C3674 01002 1
1372		B	CNA	BYPASS	FALT				7	C3667 J C2966
1373	CRC	H	CNA	HALT	AND	LCCP			6	C3674 • 02966
1374										
1375										
1376										
1377	ERR1	BCE	YBP,1000,1	BRANCH	TO	BYPASS	TYPE		12	C3680 B C3723 01000 1

PGLIN	LABEL	CFCCD	CPEKAND	CT	ACCRS	RSOI	INSTRUCTION
1378		B	TYPEIT	7	C3652	J	07742
1379		CCW	BRANCHED CN CFAN 1 CLAP2,G	23	C3721		
1380	BYP	BCE	ERC,1002,1 TC HALT	12	C3723	B	03742 C1002 1
1381		B	R1 BYPASS HALT	7	C3735	J	03514
1382	ERC	H	R1 HALT-PRESS START IC GC	6	C3742	B	03514
1383	ERR2	BCE	BPY,1000,1 BRANCH TO BYPASS TYPE	12	C3748	B	03791 C1000 1
1384		B	TYPEIT	7	C3760	J	07742
1385		CCW	BRANCHED CN CFAN 2 CLAP2,G	23	C3789		
1386	BPY	HCE	ERC,1002,1 TC HALT	12	C3791	B	03810 C1002 1
1387		B	R2 BYPASS HALT	7	C3803	J	03521
1388	ERC	H	R2 HALT-PRESS START IC GC	6	C3810	B	03521
1389	ERR3	BCE	BPY,1000,1 BRANCH TO BYPASS TYPE	12	C3816	B	03858 C1000 1
1390		B	TYPEIT	7	C3828	J	07742
1391		CCW	BRANCHED CN SECOND YIL2,C	22	C3856		
1392	BPY	BCE	ERC,1002,1 TC HALT	12	C3858	B	03877 C1002 1
1393		B	R3 BYPASS HALT	7	C3870	J	03528
1394	FRC	H	R3 HALT PRESS START IC GC	6	C3877	B	03528
1395		CRG	5001		05001		
1396	CREW	BLPR	FLY	7	05001	Y	03507 U
1397	CHW1	CCW	2Y2	1	05008		
1398		CC	FLY	5	05013		03507
1399			2F2	1	05014		
1400		B	FLY	7	05015	J	03507
1401		H		1	05022		
1402							
1403			WRITES				
1404							
1405		CRG	6000		C6000		
1406	WRIT2	WCP	MES2	10	C6000	M	210 C7316 W
1407		BAL	16	7	C6010	R	06000 P
1408		H	READ	6	C6017	B	02508
1409	WRIT3	WCP	MES3	10	C6023	M	210 C7360 W
1410		BAL	16	7	C6033	R	06023 P
1411		B	107	7	C6040	J	06234
1412	WRIT6	WCP	MES6	10	C6047	M	210 0741C W
1413		BAL	16	7	C6057	R	06047 P

RS01 INSTRUCTION

CT ADDR

CPCCD CPERAND

LABEL

PGLIN

1414	WCP	MES6A	1C	C6C64	M	X10	C7436	W
1415	BAI	*-16	7	C6074	R	Q6064	G	
1416	WCP	MES6B	1C	C6C81	M	X10	C7448	W
1417	BAI	*-16	7	C6C91	R	Q6081	G	
1418	WCP	MES6C	1C	C6C98	M	X10	C7529	W
1419	BAI	*-16	7	C61C8	R	C609H	G	
1420	WCP	MES6D	1C	C6115	M	X10	C7542	W
1421	BAI	*-16	7	C6125	R	Q6115	G	
1422	B	BB	7	C6132	J	Q3132		
1423	WCP	MES7	1C	C6139	M	X10	C7623	W
1424	BAI	*-16	7	C6149	R	Q6139	G	
1425	B	4CC	7	C6156	J	Q64CC		
1426	WCP	MES8	1C	C6163	M	X10	C7628	W
1427	BAI	*-16	7	C6173	R	Q6163	G	
1428	F	20CC	6	C6180	.	Q2CC0		
1429	SW	PCREND-2	6	C6186	.	Q7177		
1430	PLNA	PCREND,MES9E7	12	C6192	D	Q7179	C77C6	/
1431	CA	PCREND-2	6	C62C4	D	Q7177		
1432	WCP	MES9	1C	C6210	M	X10	C7699	W
1433	BAI	*-16	7	C6220	R	Q6210	G	
1434	B	CCNT	7	C6227	J	Q2932		
1435	BCE	TIPC,ICC2,1	12	C6234	H	Q6253	Q1C02	1
1436	B	TIME	7	C6246	J	Q2855		
1437	H	E	6	C6253	.	C25C2		
1438	H		1	C6259	.			
1439	.							
1440	.							
1441	.							
1442	LABEL1	B	7	C6260	J	Q20C0		
1443	CCW	2+2	1	C6267				
1444	SBR	X5	7	C6268	G	CC049	B	
1445	B	CUT	7	C6275	J	Q3494		
1446	CCW	2+2	1	C6282				
1447	.							
1448	.							
1449	.							

INSTRUCTIONS TO BE MOVED

AREAS

007

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RSC1 INSTRUCTION

C1 ADDRS INSTRUCTION

PGLIN LABEL CPCCD CPERAND

1450 CRG 70CC 07CC0
 1451 PCHK DA 1XEC,G 07CC0
 1452 PCEND EC 07C79
 1453 CRG *EXCC 071C0
 1454 PCRD DA 1XEC,G 071C0
 1455 PCRDND EC 07179
 1456 *
 1457 * CCNSTATIS
 1458 *

1 07181

5 07186

1 07187

1 07188

1 07189

31 07220

32 07252

16 07268

3 07271

5 07276 07265

5 07281 07189

3 07284

1 07285

1 07286

1 07287

1 07288

5 07293

5 07298

5 07303

5 07308

5 07313

1 07314

1 07315

GREADER NOT READY-MAKE REAL/ AND PRESS?

PES2

1485

37 07316

RSOI INSTRUCTION

CT ADDR

CPCCD CPERAND

LABEL

PGLIN

1486 2 START2.G
1487 2 DATA CHECK-CARD NUMBER -PRESS2
1488 2 START IF 1002-12.G
1489 2 CARD CCES NOT COMPARE2.G
1490 2 CARD READS-2.G
1491 2
1492 2
1493 2 2.G
1494 2 CPU CONTAINS2.G
1495 2
1496 2
1497 2 2.G
1498 2 PASS2.G
1499 2 TC REPEAT TEST, PUT DATA CARDS IN PCPP2
1500 2 ER, MAKE READER READY, & HIT START2.G
1501 2 CARD CCES NOT GIVE EXPECTED DATA2
1502 2 CHECK2.G

COMMON TYPE ROUTINE

1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1513
1513
1513
1513

TYPEIT	SR	TYPE28	ENTER ROUTINE HERE
TYPE	WCP	C	TYPE MESSAGE
	SR	TYPEXT25	SET RETURN ADDRESS
	BCB1	TYPE	BLSY
	BA1	261	RESET INTERLOCK
TYPEXT	B	C	RETURN TC PROGRAM
	H		TERMINATE ROUTINE
	END		

25000

21

22259

ENC OF ASSEMBLY

7 07742 G 07757 B
1C 07749 F 210 CCCCC W
7 07759 G 07785 B
7 07766 R 07749 2
7 07773 R 0778C F
7 07780 J 00000
1 07787 J
4 07791
1 07792
4 07796